

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

1. (currently amended) A method for transforming data formats between different database systems including a host computer and a disk storage device for storing data, said method comprising the steps of:

providing₁ in said host computer₁ ~~a skeleton program for instructing data format transformation~~ a database management system program, a computer program application which is executed on said database management system program, a skeleton program for instructing data format transformation and for storing a transformed data volume at a storage device connected to said host computer, information for said skeleton program to determine a data format transformation program in regard to data volume in said disk storage device, and a first communication program for communication with said disk storage device;

providing₁ in said disk storage device₁ a data format transforming program for executing data format transformation and a second communication program for communication with said host computer;

sending, from said skeleton program, a request to said data format transformation program on said disk storage device via said first communication program at the time of data format transformation to instruct data format transformation and storing, by said disk storage device, the transformed data volume within said disk storage device;

receiving, by said data format transformation program, the request via said second communication program; and

transforming, by said data format transformation program, ~~data having a data format which is used for an application executed on one database system into data having another data format which is used for an application executed on another database system,~~ the data volume having a data format of one database management system program on which said computer program application is executed into another data volume having the data format of another database management system program on which another computer program application is executed, said data format for said one database system being different from said data format of said another database system; ~~and~~
~~—storing, by said disk storage device, said data having said another data format within said disk storage device,~~

wherein said request comprises:

information for specifying said data format transformation program,

an address of source data,

a size of data to be transformed, and

a destination address of transformed data.

Claim 2 (canceled).

3. (currently amended) A host computer having a disk storage device attached for implementing a database management system, comprising:

a computer program application which is executed on one database management system program, and a skeleton program for selecting a data format transformation program based on said information and for sending a request to a data format transformation program in said disk storage device in order to direct said data format transformation program to perform a data format transformation of data having a data format which is used for an application executed on one database system into data having another data format which is used for an application executed on another database system, said data format for said one database system being different from said data format of said another database system and to store data having said another data format within its said disk storage device; to perform a data format transformation of a data volume having the data format of said database management system program on which said computer program application is executed into another data volume having the data format of another database management system program, said data format of said one database management system program being different from said data format of said another database management system program and to store data volume having said another data format within said disk storage device; and

a communication program for communication with said disk storage device

wherein said request comprises:

information for specifying said data format transformation program,

an address of source data,

a size of data to be transformed, and

a destination address of transformed data.

Claim 4 (canceled).

5. (currently amended) A disk storage device attached to a host computer for storing data of a database management system, comprising:

a data format transformation program for performing, within said disk storage device, ~~a data format transformation of data having a data format which is used for an application executed on one database system into another data format which is used for an application executed on another database system upon reception of a request from a skeleton program included in said host computer, said data format for said one database system being different from said data format of said another database system and storing data having said another data format in said disk storage device;~~ a data format transformation of a data volume having a data format of one database management system program on which a computer program application is executed into another data volume having the data format of another database management system program upon reception of a request from a skeleton program included in said host computer, said data format for said one database management system program being different from said data format of said another database management system program and storing data volume having said another data format in said disk storage device; and

a communication program for communication with said host computer, wherein said request comprises:
information for specifying said data format transformation program,
an address of source data,

a size of data to be transformed, and
a destination address of transformed data.

Claim 6. (canceled)

7. (currently amended) A method for transforming data formats between different ~~database systems~~ database management system programs according to claim 1, wherein said disk storage device connects to another host computer.

8. (currently amended) A method for transforming data formats between different ~~database systems~~ database management system programs according to claim 7, wherein ~~said application of said another database system is executed in said another host computer~~ said computer program application and said another database management system program are executed in said another host computer.

9. (currently amended) A method for transforming data formats between different ~~database systems~~ database management system programs according to claim 8, wherein said host computer is a mainframe and said another host computer is a open system computer.

10. (currently amended) A method for transforming data formats between different ~~database systems~~ database management system programs according to

claim 2, wherein said request is transferred from said host computer to said disk storage device by using the Internet Protocol (IP).

11. (currently amended) A method for transforming data formats between different ~~database systems~~ database management system programs according to claim 2, wherein said request is transferred from said host computer to said disk storage device by using Small Computer System Interface (SCSI) protocol.

12. (previously presented) A host computer according to claim 3, wherein said request is transferred from said host computer to said disk storage device by using Transfer Control Protocol (TCP/IP).

13. (previously presented) A host computer according to claim 11, wherein said request is transferred from said host computer to said disk storage device by using SCSI protocol.

14. (currently amended) A host computer which is connectable to a disk storage device comprising:

a processor; and

a interface which is connectable to said disk storage device,

wherein said processor provides a request to direct said disk storage device to transform one data format which is used for an application executed on one ~~database system~~ into another data format which is used for an application executed

~~on another database system and to store said another data format in said disk storage device, said data format for said one database system being different from said data format of said another database system,~~ to transform a data volume in one data format of one database management system program on which a computer program application is executed into a data volume in the data format of another database management system program and to store said data volume in said data format of said another database management system program in said disk storage device, and sends said request to said disk storage device via said interface,

wherein said request comprises:

information for specifying said data format transformation program,

an address of source data,

a size of data to be transformed, and

a destination address of transformed data.

15. (currently amended) A disk storage device attached to a host computer for storing data volume of a database management system, comprising:

a network controller which is connectable to said host computer via a network;

a disk controller connected to said network controller; and

a plurality of hard disk apparatuses connected to said disk controller,

wherein said network controller receives a request output from said host computer, ~~reads out data of one data format which is used for an application executed in one database system from one of said plurality of hard disk apparatuses~~

~~via said disk controller, transforms said data of one data format into another data format which is used for an application executed on the another database system, said data format for said one database system being different from said data format of said another database system, and stores said data of said another data format~~
reads out a data volume in one data format of one database management system program on which a computer program application is executed from one of said plurality of hard disk apparatuses via said disk controller, transforms said data volume in one data format into another data volume of the data format of another database management system program, said data format of said one database management system program being different from said data format of said another database management system program, and stores said data volume in said another data format on the other one of said plurality of hard disk apparatuses,

wherein said request comprises:

information for specifying said data format transformation program,

an address of source data,

a size of data to be transformed, and

a destination address of transformed data.

16. (currently amended) A system comprising:

a plurality of host computers; and

a disk storage device connected to said plurality of host computers,

wherein one of said host computers provides a request and sends said request to said disk storage device,

wherein said disk storage device receives said request, ~~transforms data~~
~~having one data format which is used for an application executed on one database~~
~~system into data having another data format which is used for an application~~
~~executed on the another database system, said data format for said one database~~
~~system being different from said data format of said another database system, and~~
~~stores the another data format within said disk storage device~~ transforms data
volume in one data format of one database management system program on which
a computer program application program is executed into another data volume in the
data format of another database management system program, said data format of
said one database management system program being different from said data
format of said another database management system program within said disk
storage device,

wherein said request comprises:

information for specifying said data format transformation program,

an address of source data,

a size of data to be transformed, and

a destination address of transformed data.

17. (currently amended) A system according to claim 16, wherein
another one of said host computers provides another request and sends said
another request to said disk storage device, and wherein said disk storage device
receives said another request, transforms said data volume having said another data
format into ~~data having a third data format which is used for an application executed~~

~~on a third database system~~ data volume having a third data format of a third database management system program, and stores said data volume having said third data format within said disk storage device.

18. (previously presented) A method for transforming data formats between different database systems according to claim1,
wherein said host computer has information so as to determine a data format transformation program in regard to data in said disk storage device, and said skeleton program selects a data format transformation program based on this information.